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Dissymmetrization in X-irradiated RbTiOPO4 crystal

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Abstract

Electron paramagnetic resonance has been used to study the hole and electron paramagnetic centers formed in X-irradiated RbTiOPO4, the crystals of the KTP family. X-irradiation of RbTiOPO4 crystals at 77 K produced an oxygen hole center and four different trivalent titanium electron centers I, II, III and IV. The g-tensors, their principal values and axes for the defects were calculated and compared with those for KTiOPO4 centers. X-irradiation at 300 K produced another two oxygen hole centers and three electron centers I1, I2 and II. EPR spectra of the center II revealed dissymmetrization, i.e., irregular distribution of growth defects, between the physically equivalent sites lowering the point group symmetry of the local environment of paramagnetic centers Ti3+. © Springer-Verlag 1998.